TCT

OPERATING MANUAL AND USER GUIDE

TCT50 & TCT100

Albion
AMPLIFICATION

www.albionamps.com

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Important Safety Instructions

1. Read these instructions – All the safety and operating instructions should be read before this product is operated.

2. Keep these instructions – The safety and operating instructions should be retained for future reference.

3. Heed all warnings – All warnings on the appliance and in the operating instructions should be adhered to.

4. Follow all instructions – All operating and use instructions should be followed.

5. Do not use this apparatus near water – The appliance should not be used near water or moisture – for example, in a wet basement or near a swimming pool etc.

6. Clean only with dry cloth.

7. Do not block any ventilation openings. Install in accordance with the instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding plug. A polarized plug has two blades with one wider than the other. A grounding plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and at the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart or rack is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.

13. Unplug the apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way including: power supply cord or plug damage, liquid spillages, objects falling into the unit, exposure to rain/moisture or impact damage.

15. Please keep the unit in a well ventilated environment.

16. CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

17. WARNING: To reduce the risk of fire or electric shock do not expose this apparatus to rain, moisture and dripping or splashing of liquids. Containers filled with liquids such as vases or drinks should never be placed on top of or near the unit.

18. WARNING: The mains plug/appliance coupler is used as disconnect device, the disconnect device shall remain readily operable.

19. The lightning flash with arrowhead symbol is to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

    - Warning: To reduce the risk of electric shock, do not remove cover (or back) as there are no user-serviceable parts inside. Refer servicing to qualified personnel.

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- The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.

20. Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.

21. Correct Disposal of this product. This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.

22. WARNING: The terminals marked with the symbol of " ⚠ " may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to the terminals requires installation by an instructed person or the use of ready-made leads or cords according to manufacturer's instruction.

23. "Class 2 Wiring" for all other TERMINALS provided the audio output power exceeds 10W per channel under normal operating conditions or the apparatus is intended to be installed or interconnected in the field by a SKILLED PERSON.

Important Warnings

⚠ ALWAYS read the manual of your new amplifier – even if you are experienced with guitar amplifiers and their technology! There could be something important that you need to know.

⚠ ALWAYS check that your new amplifier is suited to the mains power supply in your country.

⚠ NEVER disconnect the earth (ground) connection from your amplifier. It is there to prevent you from receiving a fatal electric shock!

⚠ NEVER use your amplifier equipment in a high moisture environment (such as rain) or allow it to get wet.

⚠ ALWAYS use correct and well maintained cables for all inter-connections whether for power, speaker or signal connections. If in any doubt, get them checked or renew immediately.

⚠ NEVER use your amplifier products with any cooling vents covered, even partially. Your amp loves being fed nice cool air!

PARTICULARLY with valve (tube) amps allow your amp to warm up before playing, 5 minutes is a good length of time. Also allow your amp to have a good cool down after playing and before moving it, especially into the back of a car on a cold winter's night! Your valves will last longer if you give them a little respect and TLC. Valves are pretty tough when you think of what they are made from – but can be very fragile if treated with physical abuse.

⚠ ALWAYS use a cable rated for loudspeaker connection use for connecting your amplifier to your loudspeaker system. DO NOT use a screened guitar cable for speaker use.

⚠ NEVER use your amplifier without it connected to a suitable matched loudspeaker system.

WARNING! Sometimes parts of the outside of your amplifier may get hot to the touch. This is quite normal and will be within safe operational limits. These limits are set by various countries safety approvals committees, and we at Albion Musical Instruments design, build, test, and have approved our products to these international standards. I.e. CE, UL, CSA, CB, ETL etc.

EMC INTERFERENCE. Even though all Albion Musical Instruments products are designed and tested to international electro-magnetic interference standards, please note that cellular phones in close proximity may cause some interference with your amplifier.

⚠ ALWAYS have your amplifier serviced by a technician qualified in servicing musical instrument amplifier products. If in doubt please contact your dealer.

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Designer's Introduction

When I sat down with a blank piece of paper (well actually as this is the 21st century, a blank computer screen) to design the TCT range of amplifiers, I had a long hard look at all the guitar amps that I had designed previously. Even though many of those designs were destined to be what can only be called Classics, I wanted to approach these new amps in a different perspective. Instead of designing under the corporate image of whatever company I was working for at the time, the TCT amps were for the first time “my” amps. This put the image in my mind as “what do I want from an amp, and how do I want it to look”. As a guitar player of many years I have used many different amps, many times different ones hooked up in a multi-amp set up for the different sounds that I needed at the time. This realisation formulated the basic concept and functionality of the direction I needed to go in, something that was simple to use but was as variable as possible. Oh, and sounded great at everything it did as well!

The “what do I want it to look like” actually developed pretty quickly – I wanted something that looked classy and stood out from the crowd, something that at the same time was familiar yet unique. For want of a better word “boutique”.

I think that the TCT series of Albion amps fulfils my dream and desire with room to spare. Finally “my” amp!
I personally love playing these amps and can sit there playing them for hours on end without tiring of them – sometimes to the annoyance of my small team I have to add – I do tend to play very loud at times, and they do have to work!

I hope that you get as much playing pleasure out of your TCT amp as I do.

Thank you

Outline Specification

The TCT50 (50 watt head, 2 x EL34), TCT100 (100watt head, 4 x EL34) and utilise the same amplifier chassis but with a different number of output EL34 valves and required transformers, biasing etc. The TCT50C (2 x 12” combo, 2 x EL34) has the same chassis and circuit as the TCT50 head but in an “upside down” configuration. The amplifier has 2 separate switchable channels, both featuring the same controls per channel. Channel A features the EQ circuit before the gain stages, whilst Channel B features the EQ after the gain stages.

Both channels feature the capability of running (depending on control settings) from “clean” through “crunch” to “high gain lead”. But due to the different “voicing” provided by the EQ position (and other voicing elements), both channels have an entirely different spectral response and player’s “feel”.

The TCT50 and TCT100 also has the ability to mix both channels together (footswitchable) making them capable of 3 channel operation.

The player himself can choose which he prefers for his particular style and suitability.

There is no fixed Clean or Lead channel that can be the limiting factor on other makes of multi channel guitar amplifiers. This flexibility sets the Albion TCT guitar amplifiers apart from other brands.

The TCT 50/100 amplifier circuit utilizes a combination of technologies to provide optimum performance required for high class consistent playing night after night.
The preamplifier section uses 4 double triode low noise 7025/12AX7/ECC83 valves (tubes) with high speed relay switching for circuit reconfiguration when channel switching.

The input gain itself is a very special proprietary circuit combining a preamp valve mixed with a unique high voltage FET (field effect transistor). This circuit has many benefits that are not readily available with tube only designs, in that the input stage noise (particularly heater hum) is greatly reduced, first stage microphony is vastly reduced, input stage gain and drive capability is increased allowing it to drive the rest of the preamp better, and lastly it imparts a tonality approaching that of a pentode tube, which is good in its own right! All this means is that the input stage will perform better and more reliably by reducing the things you DON’T want from a tube!

A word about the EQ system used on the Albion TCT range of amps. Although the tone controls are based on the time honoured interactive passive system historically used on most guitar amps, our design is somewhat wider ranging than most others. For instance the MIDDLE control has a much wider range than normal and will give

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a substantial amount of mid boost as well as mid cut. The result of this opens up a whole new range of sound possibilities that we think you will enjoy. For instance using the mid boost capability gives rise to some very sweet singing sustain – great for blues and fusion.

The preamplifier's twin channel output is then mixed into the FX loop and digital Reverb system. This section is unashamedly solid state as this section is designed to be as transparent as possible in passing all the valve tone of the preamp to the input of the all tube power amplifier section, whilst handling the duties of efficient real world FX loop connection, digital reverb connection, and noise free seamless channel switching.

In MIX mode a Balance control allows the MIX level to be adjusted higher or lower than the A/B volume level enabling the MIX to be used as a Lead boost for instance. The TCT50/100 power amplifier uses a 12AX7/ECC83 phase splitter and either 2 or 4 off EL34 output valves respectively for classic high power guitar amp punch.

The power amp section can be switched between two feedback networks. Loose gives a raw, open, vintage style to the sound with lots of player feel and tactile response. Tight gives a much tighter modern response to the sound and feel.

The output section can also be run at 33% (approx 16.5 watts for TCT50, and 33watts for TCT100) of its total output power for those situations when flat out really is "too loud"!

The TCT50C combo comes complete with two of our own designed and built Albion loudspeakers.

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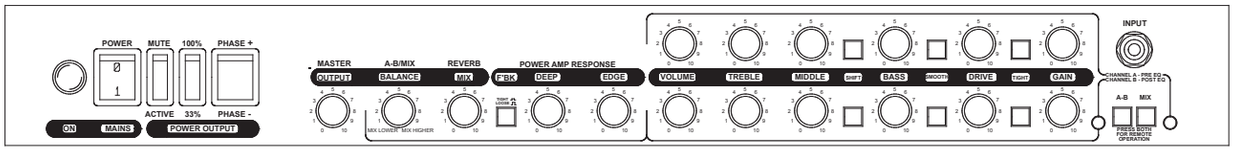
TCT50 & 100 Features and Controls



INPUT – Mono ¼" Jack socket for instrument input. Use a properly screened "guitar" cable for interconnection. There are many different makes of guitar cable available, ranging from fairly inexpensive to very expensive. Each have different characteristics, and depending on your particular guitar will give different results, all very confusing for the inexperienced! For instance, a "cheap" cable with high capacitance (which would normally be termed as a "not very good cable") can actually be of benefit for an overly bright single coil guitar by taming the very high end frequencies. Alternatively, a very low capacitance cable can help brighten up a muddy sounding hum-bucker type guitar. If possible experiment to try and find what suits you and your guitar best. Hopefully your dealer can help you choose the right cable. If using an FX pedal system then the best advice is to use high quality, low noise, low capacitance cable from pedals to amp connection.

CHANNEL & MIX SWITCHING – the pushbutton above the INPUT JACK controls which channel you are using. OUT activates channel A and illuminates A L.E.D. indicator, and IN switches over to channel B and the B L.E.D. indicator will come on. When using the remote footswitch operation then both pushswitches MUST be pushed in to engage the footswitch circuit. Push MIX switch in to combine both channels in a parallel configuration. In MIX mode all controls are functional and can be blended in any way you require.

CHANNEL A & B PREAMP CONTROLS – each channel has the same independent control line up, therefore the description below should be read for each channel.

GAIN – this control determines the amount of signal that the first amplifier gain stage lets through to the rest of the amplifier. Although this control works in conjunction with the next DRIVE control, it is pretty straightforward in use – low settings are clean – mid settings are in the start of distortion range – and high settings are the overdrive range.

TIGHT SWITCH – this switch alters the low frequency voicing of the input stage from deep low frequency to a shelved high pass. Experiment with your guitar and style, but normally when using high gain and high volume then the Tight switch is usually required.

DRIVE – the DRIVE control determines the gain and voicing of the 2nd and 3rd amplification stages. Please be aware that this control does NOT turn the signal OFF at zero setting! As with the GAIN control, low settings are cleaner – mid settings are crunchier – and high settings are more distorted.

As stated above the GAIN and DRIVE controls work in conjunction and by so doing a very wide of different gain levels and voicing's can be obtained – much more than amps with just a single gain control. Please experiment; there is no right or wrong setting, but many different sounds and voices!

SMOOTH SWITCH – this switch alters the voicing associated with the 2nd and 3rd gain stages from bright and attacking to a smoother less high frequency style. This can be used to tame very bright distortion pedals, or for getting warm clean tones for jazz style playing. Again experiment.

TREBLE, MIDDLE, BASS EQ & SHIFT SWITCH – as stated above the EQ system is very wide ranging and very versatile, experimentation is the key – please start with these controls set to mid position. What is important to remember is that the EQ circuit is connected before the gain circuits on channel A, and after the gain circuits on channel B. Putting this as simply as possible this means that channel A's EQ affects the sound of the guitar signal going into the preamp gain circuits, whereas channel B's EQ affects the sound generated by the preamp gain circuits. Think of it as channel A has a West coast USA flavour, and channel B has much more of a British flavour – but with much more on offer. The Shift Switch reconfigures the EQ circuit for a different mid frequency

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position and, due to the interactive nature of the EQ, a different EQ spectrum.

VOLUME – this quite simply controls the output of each channels preamp, giving you the required sound level and balance that you require.

The following controls affect both channels and the power output of the TCT50/100 amplifier

POWER AMP RESPONSE – the three controls under this legend are marked EDGE, DEEP and F'BK. The EDGE rotary control can be treated very much like the presence control on other guitar amps, but with a difference – instead of just boosting high frequencies in the power amplifier, the EDGE control also works with the type of Feedback circuit selected by the F'BK switch, giving two different responses. The DEEP control is an active graphic type circuit working around the resonance area of the speaker system thus increasing the punch and amount of bass from the amp/speaker system. This is variable and also gives a different response depending on the position of the F'BK switch. The F'BK switch stands for FEEDBACK, and it gives two differing "feedback loops" around the power amplifier circuit. In the case of the TCT50/100 this is "TIGHT" (high amount of feedback, switch in) and "LOOSE" (low amount of feedback, switch out). Not to get too technical these two settings can either give a flatter tightly controlled response between the power amplifier and the loudspeaker system, great for cleaner sounds and fast picking techniques (TIGHT), or in the LOOSE position, the response is a lot looser and gutsier, great for Rock!

REVERB MIX – quite simply the amount of in-built Reverb that is Mixed with the dry signal. The Reverb can be turned On/Off with the supplied footswitch.

A-B/MIX BALANCE – this control is only operational when the amp is switched to MIX mode. It allows the MIX mode output level to be increased or decreased by +/- 6dB relative to the level set by the MASTER OUTPUT control. I.e. To use the MIX mode as a lead boost over your A or B levels then turn this control up above the centre position to the desired level. If you want the MIX mode to be, for instance, as a rhythm mode, and therefore quieter than A or B then turn the Balance down below centre position.

MASTER OUTPUT – This volume control is placed between the whole preamp section and the input to the power amp section. Once your channel balance is set up, then this control is used to set up the required playing volume from the TCT50/100.

POWER AMP SWITCHING – PHASE +/- SWITCH will switch the whole amplifier output phase from additive to negative. The benefits of this are two-fold. Firstly, if using a multi-amp set up then it is highly possible that the relative phase between the two amplifiers could be different and will lead to a weak sound lacking in low-mids and bass. By switching the phase switch to a different position this will bring both amplifiers into the same relative phase and restoring the sonic spectrum that you require. Secondly, by changing the relative phase of the amplifier then the acoustic coupling between the guitar and the venue you are playing can be fine-tuned and overcome any dead-spots that you may be suffering in achieving feedback type sustain. It is very effective! Caution! We do not recommend that you switch whilst playing loudly! Stop playing briefly whilst switching. Also, due to the nature of the output stage, do not connect the speaker outputs to any mains connected equipment. If your set up requires this type of connection then either use a differential (balanced) type of connection, OR leave the Phase switch set to + phase.

100%/33% SWITCH allows the clipping level coming out of the poweramp/speaker set up can be reduced to 33% of full power (approx. 16.5 Watts TCT50, or 33 Watts TCT100) allowing great low volume performance without compromise. Coupled with the Master Output control, great tone can be achieved even at "whisper" levels.

The MUTE/ACTIVE switch is primarily a Standby switch found on the majority of guitar amplifiers – the exception being is that we have termed it Mute and Active because it has a much better meaning. Mute is amplifier off, and Active is amplifier working!

The MAINS POWER switch is self explanatory in that it turns the mains power supply coming into the amplifier off (0) or on (1).

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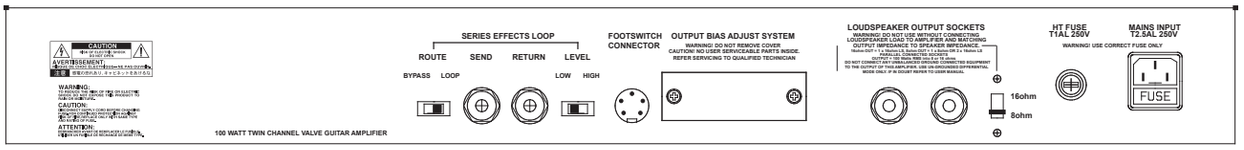
Rear Panel



SERIES EFFECTS LOOP – this consists of the Send and Return jack sockets, Level switch and Route switch. The Send socket supplies the preamp output (channel A and channel B) signal to feed the input of your remote effects system, whilst the Return socket connects the output of your effects back into the amplifier circuit. Please remember that the loop is of the “series” type, so that the entire signal is sent and returned back to the amplifier. The Level switch has Low and High settings, the setting of this will be determined by the performance quality of your effects system, and also how loud the TCT amplifier is set. Low is nominally a loop level of -10dBV, and High is nominally 0dbV. Experiment with the Level switch to see what suits your system best.

Effects Loops in general are designed to work with rack type processors rather than floor stomp boxes. The reason for this is that most floor pedals do not have enough headroom to let the signal pass through without causing the signal to distort unduly. Also loops are designed for unity-gain systems (i.e. what goes in, comes back out at the same amount of gain and signal level) and are best suited for time based processors like chorusing and delays, graphic EQ, and studio type compressors. Definitely do not put gain type pedals (distortion overdrive etc) in the loop – it really will not sound good, and be very, very noisy! If you have a good floor type processor, then by all means experiment for your time delay type effects – use the low level – it may work, it may not!

The ROUTE switch when set to Bypass disables the Loop circuit if not being used, which is best practise if not using the effects loop.

FOOTSWITCH CONNECTOR – the supplied Albion 3-button footswitch connects into this socket for Channel A-B, MIX switching and Reverb On/Off functions. Please remember that the front panel channel switches MUST be pushed in for the remote foot-switching to work.

LOUDSPEAKER OUTPUTS – the two output jack sockets are parallel wired, so please take this into consideration when using multi speaker connections. The accompanying Output Impedance Selector allows the use of full power connection into either 8 or 16 ohm speaker systems. I.e. 16 ohm output = 1 x 16 ohm speaker -- 8 ohm output = 1 x 8 ohm speaker OR 2 x 16 ohm speaker. Warning! The use of any other impedance may cause damage to your amplifier.

The Selector switch is recessed to prevent unknown accidental switching of the set impedance – to adjust please use a flat screwdriver blade in the selector switch paddle slot.

The TCT50C 2 x 12” combo is fitted with two 8 ohm loudspeaker in series for 16 ohm operation. Most Albion guitar loudspeaker cabinets are also 16 ohm.

HT FUSE – this fuse protects your amplifier from further damage in the case of one of the EL34 output valves having a failure. WARNING! USE THE CORRECT REPLACEMENT VALUE ONLY! Using a wrong value can cause expensive damage to your amplifier.

MAINS INPUT – the mains input receptacle allows for the connection of the mains power cord, and also houses the mains power fuse. To comply with International Safety Regulations (for your safety and protection) your amplifier is supplied to work with the mains supply in your country. Please check the white rating label fitted to the back panel. If in any doubt, please check with your supplier. It is of utmost importance to use the correct earthed and rated power cord, as is supplied with your amplifier.

WARNING! DO NOT USE WITHOUT CONNECTING THE EARTH (GROUND) WIRE.

In the case of the mains fuse blowing, this can be changed by removing the power cord connector from the amplifier receptacle and with the aid of a small screwdriver the small drawer in the receptacle can be withdrawn allowing access to the mains power Fuse.

WARNING! USE THE CORRECT REPLACEMENT VALUE ONLY!

A WORD OF ADVICE about fuses – if a fuse blows

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it is usually for a very good reason, it could be anything from a voltage spike on the mains power, to a serious malfunction of your amplifier. Fuses are there for your protection – treat them with respect, and never replace with the wrong value!

Specification

TCT 100 – 100 watt Head amplifier

100 watts RMS output into 8 or 16 ohm impedance loudspeaker load.

5 off 7025/12AX7/ECC83 double triode small signal valves (tubes)

4 off EL34 power valves (tubes)

HT Fuse = T1A (time lag) 250V rated 20mm glass fuse

Mains Fuse = 100V 50/60 Hz supply = T5AL (time lag) 250V rated 20mm glass fuse
Mains Fuse = 120V 60 Hz supply = T5AL (time lag) 250V rated 20mm glass fuse
Mains Fuse = 230V 50 Hz supply = T2.5AL (time lag) 250V rated 20mm glass fuse
Mains Fuse = 240V 50/60 Hz supply = T2.5AL (time lag) 250V rated 20mm glass fuse

Warning! Where fuses specified are rated at 250V please be aware that this is the rating of fuse value and NOT the rating of your particular amplifier

TCT100H head Dimensions (mm) = 702 (W) x 248 (H) x 259 (D) – Weight = 22Kg

TCT 50 – 50 watt Head amplifier, TCT50C – 50 watt 2 x 12" Combo

50 watts RMS output into 8 or 16 ohm impedance loudspeaker load.

5 off 7025/12AX7/ECC83 double triode small signal valves (tubes)

2 off EL34 power valves (tubes)

HT Fuse = T500mAL (time lag) 250V rated 20mm glass fuse
Mains Fuse = 100V 50/60 Hz supply = T3.2AL (time lag) 250V rated 20mm glass fuse
Mains Fuse = 120V 60 Hz supply = T3.2AL (time lag) 250V rated 20mm glass fuse
Mains Fuse = 230V 50 Hz supply = T1.6AL (time lag) 250V rated 20mm glass fuse
Mains Fuse = 240V 50/60 Hz supply = T1.6AL (time lag) 250V rated 20mm glass fuse

Warning! Where fuses specified are rated at 250V please be aware that this is the rating of fuse value and NOT the rating of your particular amplifier

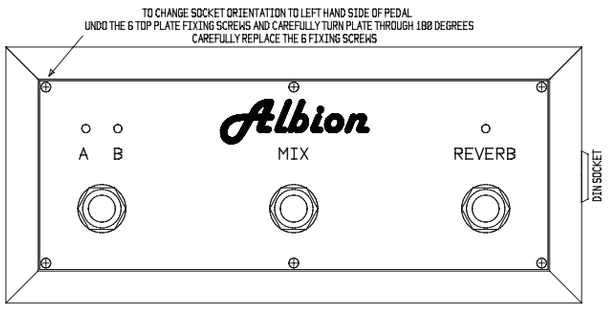
TCT50H head Dimensions (mm) = 702 (W) x 248 (H) x 259 (D) – Weight = 17.9Kg
TCT50C 2x12" combo Dimensions (mm) = 702 (W) x 267 (H) x 536 (D) – Weight = 33.5Kg

CAUTION!

There are no user serviceable parts mounted inside your amplifier! Refer servicing to suitably qualified personnel.

This means that for your own safety and the correct performance of your amplifier, do not open the chassis unless you really do know what you are doing!

AMI 3 WAY FOOT-PEDAL – the 3 way foot-pedal supplied with your TCT50/100 amplifier has a couple of features that you may want to be made aware of. Firstly the supplied 5 way DIN cable can be replaced if required by any 5 way DIN lead – either screened or unscreened. Secondly, to help the foot-pedal fit better in with your normal stage set-up, the cable connection can be made Right Hand (as supplied) or can be converted to Left Hand connection. Please see the diagram below.


TO CHANGE SOCKET ORIENTATION TO LEFT HAND SIDE OF PEDAL
UNDO THE 6 TOP PLATE FIXING SCREWS AND CAREFULLY TURN PLATE THROUGH 180 DEGREES
CAREFULLY REPLACE THE 6 FIXING SCREWS
Albion
A B
MIX
REVERB
DIN SOCKET

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